REMARKS

Upon entry of the present amendment, claims 1-11 will remain pending in the above-identified application and stand ready for further action on the merits.

The instant amendments to the claims do not introduce new matter into the application as originally filed. For example, the amendment to claim 1, finds support in original claims 9-10, which as originally filed each recited "A topsheet for an absorbent article according to claim 1, which is composed of an uneven sheet and a base sheet..." (emphasis added).

Regarding the amendments to claims 2-4 and 6, these claims have been amended to an independent format, including all of the recitations recited in instant claim 1. Regarding the amendments to claims 9-10, these claims have been amended to remove a redundant phrase based upon claim 1, instantly amended.

Accordingly, entry of the instant amendment is requested at present, and favorable action on the merits is earnestly solicited.

Claim Rejections Under 35 USC § 112, Second Paragraph

Claims 6-8 have been rejected under 35 USC § 112, second paragraph, based upon an allegation of indefiniteness. Reconsideration and withdrawal of this rejection is requested based upon the following considerations.

The USPTO contends that the last three lines of claim 6 are unclear as to the difference between W2 and W3, and that it appears that the interval W2 could be the same as W3, and that it is unclear how W3 can be 0. In response to these contentions, the Applicants direct the USPTO's attention to Figure 2 of the application and page 10, line 16 to page 11, line 9 of the specification. Upon review of these sections of the application, the Examiner will fully understand that the language of claims 6-8 fully complies with all provisions of 35 USC § 112, second paragraph, inasmuch as each of claims 6-8 particularly and distinctly sets forth the inventive discovery, which the inventors regard as their own.

Further to the above, it is noted that upon review of the above noted portion of the specification at pages 10-11 and Figure 2, the Examiner will be able to readily see (1) the difference between W2 and W3, (2) that the interval W2 is *not* the same as the interval W3, and (3)that it is possible for W3 to be 0.

Claim Rejections Under 35 USC § 102(b)/35 USC § 103(a)

Claims 1-5 and 9-11 have been rejected under 35 USC § 102(b) as anticipated by or, in the alternative, under 35 USC § 103(a) over any of Chien et al. (US 5,558,924), Fahrenkrug et al. (US 4,847,134) or Schultink et al. (US 5,871,836). Reconsideration and

withdrawal of each of these rejections are respectfully requested based upon the following considerations.

The Present Invention and Its Advantages

The present invention relates to a topsheet for absorbent articles such as disposable diapers, sanitary napkins, and incontinence pads.

More particularly, the present invention provides a topsheet for an absorbent article, which maintains a macroscopic surface profile capable of making irritating body waste, particularly high-viscosity waste be absorbed quickly by an absorbent member without allowing the waste to remain on the surface thereof and yet, which feels soft and gives little frictional irritation to the skin, thereby hardly causing any skin troubles, such as an itch or a rash.

Further, the topsheet for absorbent articles according to the present invention is flexibly deformable in conformity to the contour of a wearer's body and to the wearer's movement while in contact with the wearer's skin as the topsheet of an absorbent article.

As shown in Figures 1-2 of the application, the topsheet 1 has an uneven profile on its side to be brought into contact with a wearer's skin (opposite to the side facing an absorbent member 6).

The depressions of the uneven profile are capable of trapping high-viscosity excreta thereby separating the high-viscosity extreta from the wearer's skin.

A topsheet simply having an uneven profile on its surface on the wearer's side without flexible deformity to the contour or movement of a wearer's body will cause frictional irritation against the skin (physical irritation), not only giving a wearer discomfort but also causing skin troubles such as an itch and a rash. Likewise, if the depressions of an uneven profile are incapable of trapping high-viscosity excreta, contacts between high viscosity excreta and the skin are not broken, and chemical irritation to the skin results, which can cause skin trouble.

The present invention, by way of providing a topsheet for an absorbent article, which topsheet possesses an advantageous structure and properties, avoids such troubles as noted above, and results in an advantageous absorbent article, that can maintain a macroscopic surface structure capable of making irritating body waste, particularly high-viscosity waste, become quickly absorbed without allowing the waste to remain on the surface thereof, and yet, which feels soft and gives little frictional irritation to the skin, thereby hardly causing any skin trouble, such as an itch or a rash.

Distinctions Over the Cited Art

Chien et al. (US 5,558,924)

The cited reference of Chien et al. is concerned with a method for forming a corrugated structure. It is in no way concerned with providing a topsheet for an absorbent article, as is recited in the present claims. In support of the above contention, the Examiner's attention is directed to column 1, lines 62 to column 2, line 19, of the cited Chien et al. disclosure, which recites as follows:

> *"Accordingly, it is an object of the invention to provide a method for corrugating bonded fiberfill which enhances three-dimensional strength and resilience of the final product.*
>
> *Another object of the present invention is to provide a method for corrugating bonded fiberfill which allows excellent penetration of resin and hot air by means of resin bonding or thermo-bonding, thereby resulting in products having increased strength.*
>
> *Another object of this invention is to provide an improved structure of resin-bonded or thermo-bonded fiberfill which possess enhanced properties of anti-compression and air permeability, for use in products such as quilts, pillows, cushioned seats, cushions, mattresses, sleeping bags, ski jackets, etc. and as filtering material.*
>
> *A further objection of this invention is to provide an improved structure of resin-bonded or thermo-bonded fiberfill which supplies an alternative thickness by regulating the corrugated fiber web, thereby maintaining anticompression and air permeability.*
>
> *An additional object of the present invention is to produce a fiberfill product having a smooth and even surface."*

Accordingly, from the above disclosure occurring in the cited Chien et al. '924 patent, it is clear that its disclosure in no way arrives at or renders obvious the present inventive discovery of a topsheet for an absorbent article, which is composed of an uneven sheet and a base sheet, wherein said uneven sheet has an uneven profile formed on the surface thereof to be brought into contact with a wearer's skin, with the uneven profile being flexibly deformable in conformity to the contour of the wearer's body and to the wearer's movement, and depressions of the uneven profile being capable of trapping high-viscosity excreta, thereby separating the high-viscosity excreta from the wearer's skin while an absorbent article having the topsheet is worn.

Likewise the cited Chien et al. '924 patent does not teach or in any way render obvious the provision of a topsheet for an absorbent article as recited in any one of independent claims 2-4, which each recite limitations of the inventive topsheets of claim 1, in combination with the additional limitations as shown below relating to the physical characteristics and properties thereof:

> "...and wherein said uneven profile has a height of 0.5 to 15 mm measured from the base to the top thereof, and said topsheet shows (1) a maximum thickness change of 0.3 to 5 mm for a load increase by $\Delta 2.5$ gf/m^2 when compressed in the thickness direction under a load increasing up to 20 gf/cm^2 and (2) a compressive deformation percentage ($C\Delta L_{20}$) of 50 to 90% based on the initial thickness when

compressed under a load of 20 gf/cm^2 load, said compressive deformation percentage $C\Delta L_{20}$ being calculated from the equation: $C\Delta L_{20}=(L_0-L_{20})L_0x100$, wherein L_0 is the initial thickness, and L_{20} is the thickness under a load of 20 gf/cm^2." (*See claim 2.*)

"...and which shows (1) a compressive deformation percentage ($C\Delta L_{2.5}$) of 0.1 to 5% based on the initial thickness when compressed under a load of 2.5 gf/cm^2, said compressive deformation percentage $C\Delta L_{2.5}$ being calculated from the equation: $C\Delta L_{2.5}=(L_0-L_{2.5})L_0x100$, wherein L_0 is the initial thickness, and $L_{2.5}$ is the thickness under a load of 2.5 gf/cm^2, and (2) compressive deformation percentage ($C\Delta L_5$) of 5 to 20% based on the initial thickness when compressed under a load of 5 gf/cm^2, said compressive deformation percentage $C\Delta L_5$ being calculated from the equation: $C\Delta L_5=(L_0-L_5)L_0x100$, wherein L_0 is as defined above, and L_5 is the thickness under a load of 5 gf/cm^2." (*See claim 3.*)

"...and which shows a compressive recovery ($D\Delta L_{R2.5}/L_{2.5}$) of 70% or more as obtained from thicknesses $L_{2.5}$ and $L_{R2.5}$ according to the equation: $D\Delta L_{R2.5}/L_{2.5} = L_{R2.5}/L_{2.5}x100$, wherein $L_{2.5}$ is the thickness of the topsheet having been compressed under a load increasing up to 2.5 gf/cm^2, and $L_{R2.5}$ is the thickness of the topsheet having been further compressed by increasing the load to 20 gf/cm^2 and then relieved from compression until the load is reduced to 2.5 gf/cm^2." (*See claim 4.*)

Accordingly, based upon the above considerations, the outstanding rejection of claims 1-5 and 9-11 based upon the disclosure of Chien et al. must be withdrawn.

Fahrenkrug et al. (US 4,847,134)

The cited reference of Fahrenkrug et al. relates to a stretchable undergarment that comprises a liquid pervious body side

layer, a liquid impervious outer layer, an absorbent layer, and a stretchable layer. The stretchable layer is stretch-bonded to the other layers and, upon relaxing, the stretchable layer forms a plurality of rugosities in the body side layer, outer layer and absorbent medium (see abstract of Fahrenkrug et al.).

Accordingly, the disclosure of Fahrenkrug et al. is concerned primarily with providing an absorbent article that utilizes therein a stretchable layer causing the formation of rugosities. In this respect, the Examiner's attention is directed to column 2, lines 36-43 of the cited Fahrenkrug et al. reference which teaches as follows:

> *"The undergarment provides increased surface dryness due to the formation of rugosities caused by the stretchable layer. These rugosities provide more available surface area for absorbing fluids, thereby increasing the rate of absorbency. The intimate contact of the undergarment with the body in combination with the overall bulking caused by rugosities also positively affects its absorbency characteristics."*

Accordingly, the above disclosure of Fahrenkrug et al. clearly shows that its provided article does not anticipate the present invention as claimed, since its article does not meet all of the limitations of any of the pending claims, and further is incapable of rendering any of the pending claims obvious under 35 USC 103(a), since it provides no motivation to those of ordinary skill in the art to arrive at a topsheet for an absorbent article as recited in

each of pending claims 1-5 and 9-11. This is particularly true for independent claims 2-4, which recite physical properties and characteristics for the topsheets for absorbent articles encompassed thereby.

Based upon the above considerations, it is submitted that the outstanding rejection of claims 1-5 and 9-11 over the cited Fahrenkrug et al. reference must be withdrawn.

Schultink et al. (US 5,871,836)

The cited Schultink et al. reference is concerned with providing a novel pleated fibrous structure, which fibrous structure comprises a layer of pleated split fiber film, wherein the layer of split fiber film may be electrostatically charged. In this respect, the cited Schultink et al. reference is primarily concerned with providing composites that are particularly useful as insulation or as filters (see column 1, lines 12-13).

Accordingly, based upon a full review of the cited Schultink et al. reference, it is clear that its disclosure in no way teaches or otherwise renders obvious the provision of a topsheet for an absorbent article as recited in the present claims. Accordingly, the Examiner must reconsider the outstanding rejection and withdraw the same, since no teachings or motivations are provided in the

cited art which would allow one to either produce or arrive at the instant invention as claimed in claims 1-5 and 9-11.

Accordingly, based upon the above considerations, the USPTO's outstanding rejection of claims 1-5 and 9-11 under 35 USC § 102(b)/35 USC § 103(a) over any of Chien et al., Fahrenkrug et al. or Schultink et al. must be withdrawn.

Claim Rejections Under 35 USC § 102(e)/35 USC § 103(a)

Claims 1-11 have been rejected under 35 USC § 102(e) as anticipated by or, in the alternative, under 35 USC § 103(a) as obvious over Raidel et al. (US 6,171,682). Reconsideration and withdrawal of this rejection is respectfully requested based upon the following considerations.

The cited Raidel et al. reference relates to an apparatus for continually producing a web (1) which is corrugated from a thin sheet material which is elastic at least in a transverse direction of the web (see abstract of Raidel et al.).

Further, to the extent that the Raidel et al. reference discusses the corrugated web produced with it's apparatus, such disclosure does <u>not</u> anticipate or render obvious any of the instantly pending claims.

For example, at column 3, lines 19-39, the cited Raidel et al. reference does discuss a corrugated web produced with its

apparatus, but this disclosure in no way teaches the instant invention as claimed, or provides any motivation to arrive at the invention being claimed. Column 3, lines 19-39 of Raidel et al. are set forth for the Examiner's convenience.

> "The corrugated web produced with the process of the invention and the apparatus of the invention can advantageously be used as component of an absorbent article for absorbing body fluids, such as a diaper, sanitary napkin or incontinence pads. Such an absorbent article usually comprises a liquid-impermeable cover sheet disposed away from the body in use, a liquid-permeable cover sheet disposed towards the body in use and an absorbent body disposed between said liquid-permeable and said liquid-impermeable cover sheet. The absorbent article of the invention is distinguished in that the liquid-permeable cover sheet and/or the absorbent body comprises at least in partial sections thereof corrugations ("pleatings"). To this end, webs can be used which have been laid in folds by means of the process of the invention or the apparatus of the invention. The webs produced according to the invention are advantageous as compared to corrugated webs conventionally produced by means of stamping rollers in that they are of superior wearing comfort and improved absorbing capacity, because the treated material is practically not compacted in the forming process."

Likewise, while additional disclosure is provided in the cited Raidel et al. '682 patent concerning absorbent articles producible with its apparatus (*e.g.*, see column 7, line 60 to column 8, line 67 of Raidel et al.), such disclosure does not anticipate or render obvious the instant invention as claimed. Instead, such disclosure at best simply allows for an absorbent member having a frontside liquid-permeable cover sheet that may be pleated.

In support of applicant's contentions, the following excerpts from the noted portions of columns 7-8 of Raidel et al. are provided for the Examiner's convenience

> "Furthermore, the invention relates to an absorbent article suitable for absorbing body fluids. Such articles are, for example, articles for feminine care, like sanitary napkins, as well as diapers, incontinence pads and the like.
>
> Said hygienic articles are known in most various forms. They all have in common a backside liquid-impermeable cover sheet, a frontside liquid-permeable cover sheet and an absorbent body between said two sheets.
>
> ...Apart from the basic absorbent capacity of the absorbent body, the properties of the frontside cover sheet, i.e., the body side layer, in terms of product engineering, such as tactile softness, rate of absorbency of body fluids, the distribution of the latter in the sanitary article and the rewetting properties are decisive. The nonwovens usually used for the bodyside cover sheet are largely comparable as far as the aforementioned properties are concerned.
>
> Due to the frontside cover sheet being folded according to the invention, a surface effect is achieved which can best be described by the term "pleating".
>
> The folds provide longitudinal channels on the surface of the sanitary article to improve the liquid distribution in longitudinal direction and at the same time barriers against liquid expansion in transverse direction. This results in a considerable improvement of the leak-proofness of the sanitary article.
>
> ...Such an effect--in terms of liquid distribution--can also be achieved with part of the absorbent body being provided in pleated form, or, in combination with a pleated cover sheet, even improved. Suitable materials for the pleated absorbent body are hydrophilic nonwovens, such as hydrophilic carded nonwovens or hydrophilic

> spundbonded nonwovens having basis weights of from 6 to 80 g/m_2, in particular 10 to 30 g/m_2, air laid fiber web and laminates.
>
> ...If, according to a preferred embodiment, the valley portions of the folds disposed towards the absorbent body are fixed on the absorbent body or a backing sheet disposed between the latter and the frontside cover sheet, the folds are so stabilized that the positive effects produced by them is maintained even after storage in pressed condition or prolonged periods of wear.
>
> The valley portions of the contiguous folds can be fixed in that they are adhered (adhesive strip) or welded to the absorbent body or the backing sheet over a width (valley width F) of preferably 0.2 to 10 mm.
>
> The valley portions of two adjoining folds can be affixed at a distance (A) of from 1 to 20 mm apart from each other and the projecting height (H) of the folds in unloaded state can likewise be 1 to 20 mm." (*See column 7, line 60 - column 8, line 67 of Raidel et al.*)

Such disclosure does not arrive at the present invention either by anticipation or through obviousness. The Examiner need only review applicant's independent claims, *e.g.*, see the above noted portions of independent claims 2-4, which recite physical properties and characteristics of the inventive topsheet for absorbent articles that are not taught or otherwise rendered obvious by the cited Raidel et al. patent. This is also true of independent claim 6, which like claims 2-4 also recites physical properties and characteristics for the inventive topsheet for an absorbent member that are not taught or rendered obvious by the cited Raidel et al. patent:

> *"...and wherein said uneven profile is formed by gathering an unevenness-forming sheet into a great number of parallel folds and joining the thus folded sheet to a base sheet at the bases of said folds, such that the joints formed between said folded sheet and said base sheet each have a width W1 of 0.1 to 10 mm and are equally spaced at an interval W2 of 1 to 30 mm, and the minimum distance W3 between adjacent folds is 0 to 5 mm."* (See claim 6.)

Accordingly, the teachings of the cited Raidel et al. reference do not allow one of ordinary skill in the art to arrive at a topsheet for an absorbent article as recited in any one of independent claims 1-4 or 6, or any of the remaining claims 5 and 7-11, which ultimately depend there from. Thus, based upon such considerations, it is clear that each of the pending claims 1-11 is patentably distinct from, and non-obvious over the cited Raidel et al. patent.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to withdraw all outstanding rejections under 35 USC § 112, as well as all outstanding rejections over cited art of record. Further, the Examiner is respectfully requested to issue a Notice of Allowance, clearly

indicating that each of the pending claims are allowable at present.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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